

CLAIMS

1. Apparatus for adjusting relative positions of different machine components, comprising:

5 a first eccentric ring having a first edge disposed in slideable contact with a first component of a given machine;

 a second eccentric ring having a first edge disposed in slideable contact with a second component of the given machine, and having a second edge disposed in slideable contact with a second edge of the first eccentric ring;

10 wherein the contact portions of each said edge are circumscribed by a respective circle;

 means for rotating the first eccentric ring to thereby adjust the relative positions of the first and second components; and

15 means for rotating the second eccentric ring to thereby adjust the relative positions of the first and second components.

2. Apparatus according to Claim 1, wherein the respective rotating means are capable of bi-directionally rotating the respective eccentric rings.

20 3. Apparatus according to Claim 1, wherein the respective eccentric rings are disposed for rotation about parallel axes of rotation for adjusting the relative positions of the first and second components within a plane that is perpendicular to said axes of rotation.

4. Apparatus according to Claim 1, wherein the second edge of the second eccentric ring is disposed in slideable contact with the outermost edge of the first eccentric ring.

5 5. Apparatus according to Claim 4, wherein the second edge of the second eccentric ring is the innermost edge of the second eccentric ring.

6. Apparatus according to Claim 1, wherein the second edge of the first eccentric ring is disposed in slideable contact with the innermost edge of the second eccentric ring.

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7. Apparatus according to Claim 1, wherein each rotating means includes a pair of oppositely disposed drive gears for rotating the respective eccentric ring.

8. Apparatus for adjusting an alignment between different outer-wall-defining sections of a cavity mold part of a mold in which a hollow product is formed in a mold cavity defined between the cavity mold part and a core mold part, comprising:

a first eccentric ring having a first edge disposed in slideable contact with a side section of the cavity mold part that forms an outer surface of a sidewall portion of the hollow product;

a second eccentric ring having a first edge disposed in slideable contact with a base section of the cavity mold part that forms an outer surface of a base portion of the hollow product, and having a second edge disposed in slideable contact with a second edge of the first eccentric ring;

wherein the contact portions of each said edge are circumscribed by a respective circle;

means for rotating the first eccentric ring to thereby adjust the relative positions of the first and second components and thereby adjust an alignment between the side and base sections of the cavity mold part; and

means for rotating the second eccentric ring to thereby adjust the relative positions of the first and second components and thereby adjust the alignment between the side and base sections of the cavity mold part.

20 9. Apparatus according to Claim 8, for adjusting a plurality of throttles that are respectively shaped by relative positions of partially opposed recesses respectively disposed in the core mold part and the base section of the cavity mold part.

10. Apparatus according to Claim 8, wherein the second edge of the second eccentric ring is disposed in slideable contact with the outermost edge of the first eccentric ring.

5 11. Apparatus according to Claim 10, wherein the second edge of the second eccentric ring is the innermost edge of the second eccentric ring.

12. Apparatus according to Claim 8, wherein the second edge of the first eccentric ring is disposed in slideable contact with the innermost edge of the second eccentric ring.

10 13. Apparatus according to Claim 8, wherein each rotating means includes a pair of oppositely disposed drive gears for rotating the respective eccentric ring.

14. A method of manufacturing a product, comprising the steps of:

(a) providing first and second machine components that are combined for manufacture of the product;

(b) adjusting the position of the first machine component relative to the position
5 of the second machine component, and

(c) commencing manufacture of the product with the first machine component in said adjusted position;

wherein step (a) comprises the steps of

(d) combining the first machine component with a first eccentric ring having a
10 first edge disposed in slideable contact with said first component;

(e) combining the second machine component with a second eccentric ring having a first edge disposed in slideable contact with said second component; and

(f) disposing a second edge of the second eccentric ring in slideable contact with a second edge of the first eccentric ring;

15 wherein the contact portions of each said edge are circumscribed by a respective circle; and

wherein step (b) comprises the step of:

(g) rotating the first eccentric ring to thereby to thereby adjust the relative positions of the first and second components; and

20 (h) rotating the second eccentric ring to thereby adjust the relative positions of the first and second components.

15. A method according to Claim 14 for manufacturing a hollow product that is formed in a mold cavity defined between a cavity mold part and a core mold part, wherein the first machine component includes a side section of the cavity mold part that forms an outer surface of a sidewall portion of the hollow product and the second machine component includes a base section of the cavity mold part that forms an outer surface of a base portion of the hollow product; and wherein step (b) comprises the step of:

(i) adjusting an alignment between side and base sections of the cavity mold part.

10 16. A method according to Claim 15, wherein step (i) comprises the step of:
(j) adjusting a plurality of throttles that are respectively shaped by relative positions of partially opposed recesses respectively disposed in the core mold part and the base section of the cavity mold part.

15 17. A method according to Claim 14, wherein steps (g) and (h) comprise the step of:

(i) rotating the respective eccentric rings about parallel axes of rotation to adjust the relative positions of the first and second components within a plane that is perpendicular to said axes of rotation.

20 18. A method according to Claim 14, wherein the second edge of the second eccentric ring is disposed in slideable contact with the outermost edge of the first eccentric ring.

19. A method according to Claim 18, wherein the second edge of the second eccentric ring is the innermost edge of the second eccentric ring.

20. A method according to Claim 14, wherein the second edge of the first eccentric ring is disposed in slideable contact with the innermost edge of the second eccentric ring.
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